WiFi Kit 8

Development Kit

Document version

Version	Time	Description
V1.0	2017-11-08	Documents creating
V1.0	2022-05-30	Document structure update

Copyright Notice

Disclaimer

Chengdu Heltec Automation Technology Co., Ltd. reserves the right to change, modify or improve the document and product described herein. Its contents are subject to change without notice. These instructions are intended for you use.

Content

WiFi Kit 8 ..... **1**

Document version *2*

Copyright Notice *3*

Disclaimer *3*

Content *4*

1. Description *5*

1.1 Overview 5

1.2 Product features 5

2. Pin Definition *6*

2.1 Pin assignment 6

2.2 Pin description 6

3. Specifications *8*

3.1 General specifications 8

3.2 Power supply 8

3.3 Power output 9

3.4 Power characteristics 9

4. Hardware resource *10*

4.1 Physical dimensions 10

5. Resource *11*

5.1 Relevant Resource 11

5.2 Contact Information 11

1. Description

1.1 Overview

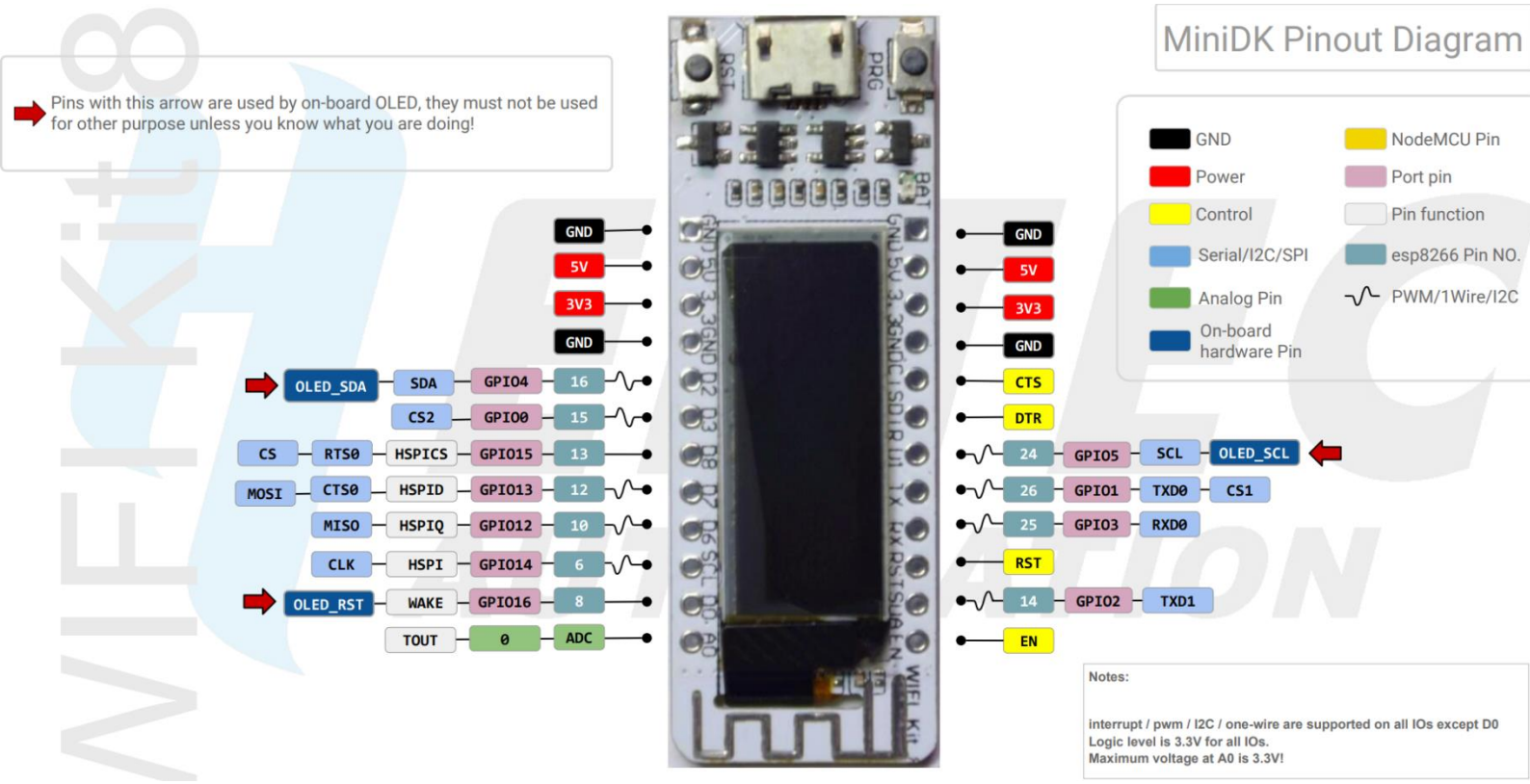
WiFi Kit 8 is a classic IoT dev-board designed & produced by Heltec Automation(TM), it's a highly integrated product based on ESP8266 (Wi-Fi), Li-Po battery management system, 0.91″ OLED is also included. It's the best choice for smart cities, smart farms, smart homes, and IoT makers.

1.2 Product features

- Microprocessor: ESP8266;
- Micro USB interface with a complete voltage regulator, ESD protection, short circuit protection, RF shielding, and other protection measures;
- Onboard SH1.25-2 battery interface, integrated lithium battery management system (charge and discharge management, overcharge protection, battery power detection, USB / battery power automatic switching);
- Onboard 2.4GHz (for Wi-Fi) PCB antenna;
- Onboard 0.91-inch 128*32 dot matrix OLED display, which can be used to display debugging information, battery power and other information;
- Integrated CP2104 USB to serial port chip, convenient for program downloading, debugging information printing;
- Compatible with the Arduino development environment.

2. Pin Definition

2.1 Pin assignment



2.2 Pin description

Header P1

Table 2-2-1 Pin description

No.	Name	Type	Function
1	GND	P	Ground.
2	5V	P	5V Input/Output.
3	3V3	P	3.3V Input/Output.
4	GND	P	Ground.
5	GPIO4	I/O	GPIO4, SDA, OLED_SDA.
6	GPIO0	I/O	GPIO0, SPI_CS2.
7	GPIO15	I	GPIO15, HSPI_CS, UART0_RTS.
8	GPIO13	I/O	GPIO13, HSPI_MOSI, UART0_CTS.

9	GPIO12	I/O	GPIO12, HSPI_MISO.
10	GPIO14	I/O	GPIO14, HSPI_CLK.
11	GPIO16	I/O	GPIO16, WAKE.
12	ADC	I/O	ADC_IN, TOUT.

Header P2

Table 2-2-2 Pin description

No.	Name	Type	Function
1	GND	P	Ground.
2	5V	P	5V Input/Output.
3	3V3	P	3.3V Input/Output.
4	GND	I/O	Ground.
5	CTS	I/O	USB_to_UART CTS.
6	DTR	I/O	USB_to_UART DTR.
7	GPIO5	I/O	GPIO5, SCL, OLED_SCL.
8	GPIO1	I/O	GPIO1, UART_TX, SPI_CS1.
9	GPIO3	I/O	GPIO3, UART_RX.
10	RST	I/O	RESET.
11	GPIO2	I/O	GPIO2, UART1_TX.
12	EN	I/O	Chip enable.

3. Specifications

3.1 General specifications

Table 3-1: General specifications

Parameters	Description
Master Chip	ESP8266 (160MHz Tensilica L06)
USB to Serial Chip	CP2104
Wi-Fi	802.11 n support (2.4 GHz), up to 72.2 Mbps
Display Size	0.91-inch OLED
Hardware Resource	UART x 2; SPI x 2; I2C x 1; I2S x 1; 10-bits ADC inputx 1; GPIO x 17
Memory	4MB(32M-bits) SPI FLASH; 520KB internal SRAM
Interface	Micro USB x 1; 12 x 2.54 pin x 2
Battery	3.7VLithium(SH1.25 x 2 socket)
Operating temperature	-20 ~ 70 ℃
Dimensions	50.9 x 18.2 x 8 mm

3.2 Power supply

Except when USB or 5V Pin is connected separately, lithium battery can be connected to charge it. In other cases, only a single power supply can be connected.

Table 3-2: Power supply

Power supply mode	Minimum	Typical	Maximum	Company
USB powered（≥500mA）	4.7	5	6	V
Lithium battery(≥250mA)	3.3	3.7	4.2	V

5V pin(≥500mA)	4.7	5	6	V
3V3 pin(≥150mA)	2.7	3.3	3.5	V

3.3 Power output

Table 3-3: Power output

Output Pin	Minimum	Typical	Maximum	Company
3.3V Pin			500	mA
5V Pin (USB Powered only)		Equal to the input current		

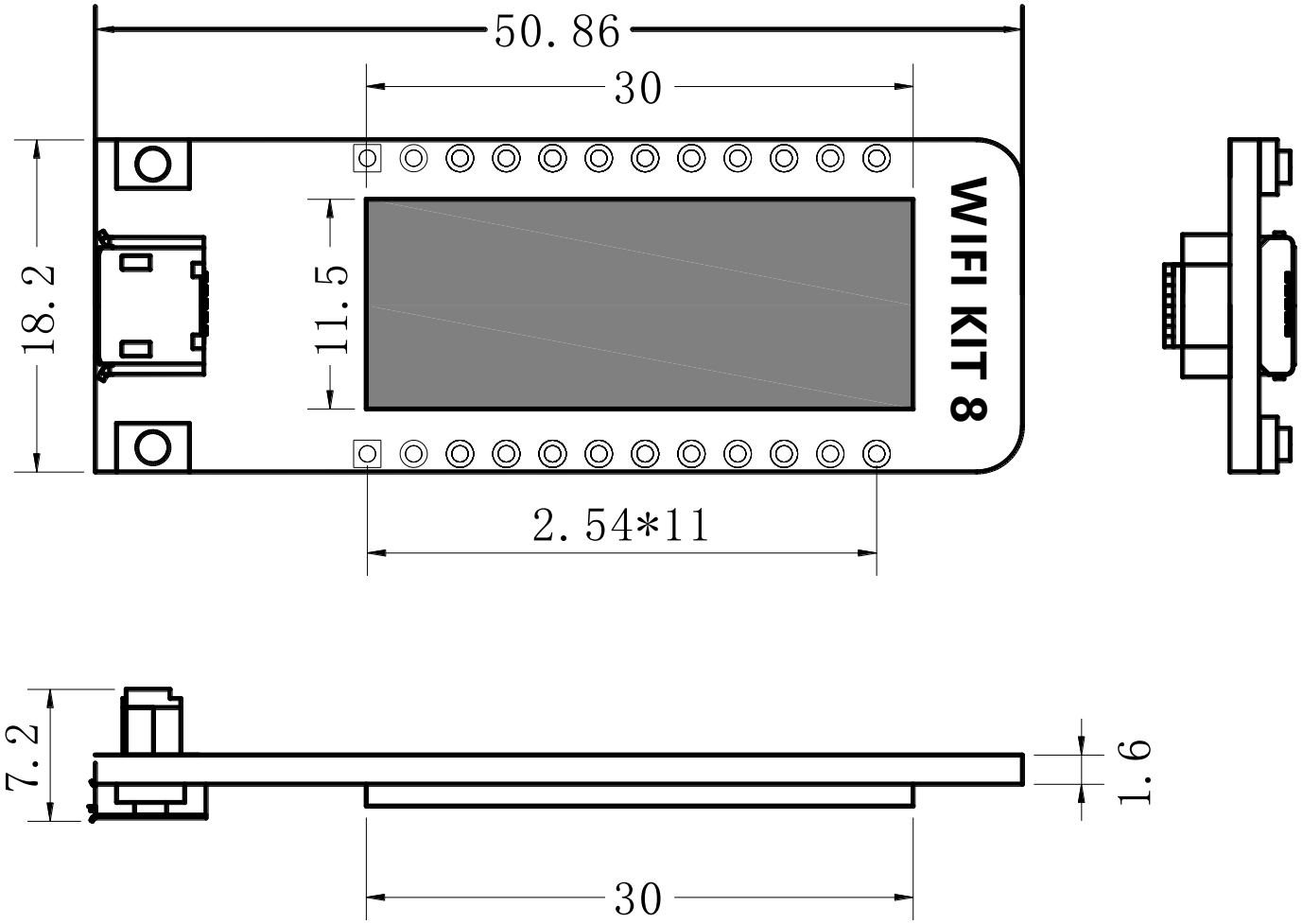
3.4 Power characteristics

Table 3-4: Power characteristics

Mode	Min.	Typical	Max.	Company
WiFi Scan		115		mA
WiFi AP		135		mA

4. Hardware resource

4.1 Physical dimensions



5. Resource

5.1 Relevant Resource

- Pin map
- Schematic diagram
- Downloadable resource

5.2 Contact Information

Heltec Automation Technology Co., Ltd

Chengdu, Sichuan, China

Email: support@heltec.cn

Phone: +86-028-62374838

https://heltec.org